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In re Application of	:	Green, William Delaplaine
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SUPPLEMENTAL AMENDMENT

A. Introduction

This Supplemental Amendment is being submitted as a Replacement for the Supplemental Reply filed by Applicant dated August 22, 2007. Although the PTO did not issue a Notice of Non-Compliant Amendment with regard to the August 22, 2007 Supplemental Reply, such reply did not include a complete listing of all of the claims. The following amendments and remarks are therefore respectfully resubmitted in the proper format.

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims beginning on page 3 of this paper.

Remarks begin on page 24 of this paper.

B. Amendments to the Specification

Please replace paragraph 21 with the following amended paragraph;

[0021] FIGS. 6 and 7 illustrate a different embodiment of the described invention. FIG. 6 shows the embodiment wherein a poppet valve 105 seals passage 50' from cylinder 60', valve stem of valve 105 projects upwards through sections 34' and 36' into compartment 108 containing helical spring 106, retainer 107, and keeper 111 that keeps valve 105 tensioned against the lower wall of passage 50' when the valve port, (an orifice) is closed. When combustion of fuel and air compressed in passage 50' occurs the force of combustion, fluid pressure, pushes valve 105 down against the face of piston 76' temporarily forcing it towards bottom dead center. Burning fuel mixture flows into cylinder 60' through the valve port and continues to force piston 77 towards BDC as the valve closes. At BDC the piston uncovers the exhaust port 42' and exhaust gases escape through it from cylinder 60'. Valve 105 closes when fuel injector 52' (not shown) stops injecting fuel into the engine at which time the fresh air from the compressor flowing into passage 50' burns out the fuel within passage 50'. Throttle butterfly valves 101 and 102 control the amount of air flowing into the engine. Screw on cap 104 covers the compartment 108. Valve stem of valve 105 passes through valve guide 110.

C. Amendments to the Claims

1. (Previously presented) In a two cycle internal combustion engine having housing means to provide the necessary spaces in the engine, compressor means to force combustible material into the engine, fuel injection means to inject fuel into the engine for combustion, reciprocating means to compress combustible material held within said housing means between the compressor means and the reciprocating means to cause detonation of said combustible material, wherein the improvement comprises the compressor means can compress more combustible material into the combustion process after detonation commences.

2. (Original) A two cycle internal combustion engine as defined in claim **1** wherein the reciprocating means includes crankshaft means to cause reciprocating motion of a reciprocating part, receive a power transfer from the reciprocating part during combustion, and output engine torque.

3. (Original) A two-cycle internal combustion engine as defined in claim **2** wherein said crankshaft means includes output shaft means to output engine torque.

4. (Original) A two-cycle internal combustion engine as defined in claim **3** wherein the compressor means include output shaft means to output and receive engine power.

5. (Original) A two cycle internal combustion engine as defined in claim **4** wherein the improvement comprises power transfer means rotatably connecting said crankshaft output shaft means to said compressor output shaft means for a transfer of power between them.

6. (Original) A two-cycle internal combustion engine as defined in claim **5** wherein the compressor means is comprised of a positive displacement gear type air compressor to compress combustible material into the engine.

7. (Original) A two cycle internal combustion engine as defined in claim **6** wherein said housing means includes cylinder means to confine the movement of the reciprocating means.

8. (Original) A two cycle internal combustion engine as defined in claim **7** wherein the reciprocating parts include piston means, piston pin means and connecting rod means with said piston means connected to said piston pin means and the piston pin means rotatably connected to said connecting rod means and the connecting rod means rotatably connected to the crankshaft means for a transfer of power between the

crankshaft means and the connecting rod means.

9. (Original) A two-cycle internal combustion engine as defined in claim **8** wherein the improvement comprises an exhaust passage means connected between an exterior wall of the housing means and said cylinder means for the release of exhaust gases contained within the cylinder means.

10. (Original) A two-cycle internal combustion engine as defined in claim **9** wherein the improvement comprises intake passage means connected between an exterior wall of the housing means and the interior housing space confining the compressor means for passage of combustible material to the compression means.

11. (Original) A two-cycle internal combustion engine as defined in claim **10** wherein the improvement comprises passage means connecting the outlet of the compressor means to the cylinder means.

12. (Original) A two-cycle internal combustion engine as defined in claim **11** wherein the improvement comprises a fuel injector located within the housing means for injection of fuel into the housing means.

13. (Original) A two-cycle internal combustion engine as defined in claim **12** wherein said fuel injector injects fuel between the compressor means and the reciprocating means.

14. (Original) A two cycle internal combustion engine as defined in claim **13** wherein the improvement comprises a fuel igniter located within the housing means to ignite combustible material within the housing means between the compressor means and the reciprocating means.

15. (Original) A two-cycle internal combustion engine as defined in claim **14** wherein the improvement comprises intake and exhaust valve means to control the flow of fluids moving between engine housing spaces.

16. (Original) A two cycle internal combustion engine as defined in claim **15** wherein said valve means includes valve port means formed in the housing means between the compressor means and the cylinder means and a valve to cover said valve port means to control the flow of fluids moving between the compressor means and the cylinder means, and between the cylinder means and the exhaust port means.

17. (Previously amended) A two cycle internal combustion engine as defined in claim 16 wherein the improvement comprises oil pump means to pump lubricant to

moving parts of the engine.

18. (Original) A two-cycle internal combustion engine as defined in claim **17** wherein the housing means includes cooling passage means to contain engine coolant and provide a means to remove excess heat from the housing means.

19. (Original) A two cycle internal combustion engine as defined in claim **18** wherein the improvement comprises bearing means to provide support to rotating parts.

20. (Previously presented) A two cycle internal combustion engine as defined in claim **19** wherein the improvement comprises throttle means to control the supply of oxygen entering the intake passage means so the combustion process can be controlled.

21. (Original) A two cycle internal combustion engine as defined in claim **20** wherein said positive displacement gear type air compressor includes two gear shafts divided into five separate gear pumps to pump all the working fluids the engine uses, air, coolant, oil, and fuel having a air compressor to compress air into the engine, a gear pump to each side of the compressor gears to pump engine oil, and beside one said oil gear pumps a coolant gear pump to pump engine coolant, and beside the other oil gear pump a fuel gear pump to pump engine fuel.

22. (Original) A two cycle internal combustion engine having housing means to provide the necessary spaces in the engine, compressor means to force combustible material into the engine, fuel injection means to inject fuel into the engine for combustion, reciprocating means including crankshaft means to compress said combustible material held within said housing means between said reciprocating means and said compressor means to cause detonation of the combustible material so the compressor means can compress more combustible material into the combustion process after detonation commences, wherein the improvement comprises said housing divided into three sections along two parallel planes, one plane intersecting the axes of the gear shafts of the compressor means and the second intersecting the axis of said crankshaft, and said three housing sections held tightly together by fastening means.

23. (Currently amended) A two cycle internal combustion engine having a housing to provide the necessary spaces in the engine, fuel injection means to inject fuel into a space in the engine for combustion and for initiating combustion, a positive displacement gear pump compressor to force combustible material into said space in the engine for combustion, reciprocating means to compress combustible material held within said space in the engine between said reciprocating means and said positive displacement gear pump compressor to cause combustion of said combustible material

so said positive displacement gear pump compressor continues to compress more combustible material into said space in the engine after combustion begins, wherein the improvement comprises valve means to control the movement of fluids within the engine.

24. (Previously presented) A two cycle internal combustion engine having a housing to provide the necessary spaces in the engine, a positive displacement gear type compressor to force combustible material into a space in the engine, fuel injection means to inject fuel into said space in the engine for combustion, reciprocating means to compress combustible material held within said space in the engine between said reciprocating means and said positive displacement gear type compressor to cause combustion of said combustible material so said positive displacement gear type compressor continues to compress more combustible material into the combustion process after combustion begins, wherein the improvement comprises spark ignition means to control when combustion begins.

25. (Previously presented) A two cycle internal combustion engine having a housing to provide the necessary spaces in the engine, a positive displacement gear type compressor to force combustible material into a space in the engine, fuel injection means to inject fuel into said space in the engine for combustion, reciprocating means to compress combustible material held within said space in the engine between said reciprocating means and said positive displacement gear type compressor to cause combustion of said combustible material so said positive displacement gear type compressor continues to compress more combustible material into the combustion process after combustion begins, wherein the improvement comprises throttle means to control the flow of combustible material into said positive displacement gear type compressor.

26. (Original) A two cycle internal combustion engine having housing means to provide the necessary spaces in the engine, compressor means to force combustible material into the engine, fuel injection means to inject fuel into the engine for combustion, reciprocating means to compress combustible material held within said housing between said reciprocating means and said compressor means to cause detonation of said combustible material so the compressor means can compress more combustible material into the combustion process after detonation commences, wherein the compressor means is comprised of a positive displacement gear type air compressor to compress combustible material into the engine.

27. (Original) A two cycle internal combustion engine having housing means to provide the necessary spaces in the engine, compressor means to force combustible material into the engine, fuel injection means to inject fuel into the engine for

combustion, reciprocating means to compress combustible material held within said housing between said reciprocating means and said compressor means to cause detonation of said combustible material so the compressor means can compress more combustible material into the combustion process after detonation commences, wherein the improvement comprises power transfer means rotatably connecting the compressor means with the reciprocating means for a transfer of power between them.

28. (Original) A two cycle internal combustion engine having housing means including cylinder means to provide the necessary spaces in the engine, reciprocating means to output engine power and force combustion products out of the engine, compressor means to force combustible material into the engine head and compress it there, intake valve means to control fluids passing into the cylinder, wherein the improvement comprises fuel injection means to inject fuel into the engine head upstream of the intake valve to cause combustion to commence within the engine head.

29. (Original) A two-cycle internal combustion engine as defined in claim **28** wherein the improvement comprises valve means having valve stems passing between the rotating part of said compressor means.

30. (Original) A two cycle internal combustion engine as defined in claim **29** wherein the improvement comprises overhead camshaft means driven by the compressor means.

31. (Original) A two-cycle internal combustion engine as defined in claim **30** wherein the improvement comprises intake and exhaust valve means actuated by said overhead camshaft means.

32. (Original) A two cycle internal combustion engine as defined in claim **31** wherein the improvement comprises combustion passage means located between the compressor means and the valve means intake valve head.

33. (Original) A two-cycle internal combustion engine as defined in claim **32** wherein the improvement comprises fuel injection means to inject fuel into said combustion passage means.

34. (Original) A two-cycle internal combustion engine as defined in claim **33** wherein the improvement comprises a camshaft compartment divided along the axis of the camshaft.

35. (Original) A two cycle internal combustion engine as defined in claim **34** wherein the improvement comprises spark ignition means located within the engine

housing to ignite the fuel mixture compressed within said combustion passage means.

36. (Original) A two cycle internal combustion engine as defined in claim **35** wherein the improvement comprises a gear train compartment formed within one end of the engine housing means to contain a camshaft gear drive train rotatably connecting a compressor gear drive gear to a camshaft drive gear.

37. (Original) A two-cycle internal combustion engine as defined in claim **36** wherein said camshaft drive gear train includes a crankshaft driven gear fixedly attached to one compressor gear shaft so the crankshaft can drive said compressor gear shaft.

38. (Original) A two-cycle internal combustion engine as defined in claim **37** wherein the compressor includes a positive displacement gear type air compressor to compress combustible material into the engine.

39. (Original) A two cycle internal combustion engine as defined in claim **38** wherein said positive displacement gear type air compressor is divided into four separate gear pumps, two inner gear pumps to compress combustible material into the engine and two outer gear pumps to pump oil to engine parts requiring lubrication and to reduce the wear of the two main compressor gears.

40. (Cancelled)

41. (Previously amended) A internal combustion engine as defined in claim **67** wherein said cooling means supplies combustible material for combustion to said compressor means.

42. (Previously presented) A internal combustion engine having housing means, compressor means, reciprocating means, and fuel supply means, to cause combustion of said fuel between said compressor means and said reciprocating means wherein said compressor means and said reciprocating means receive a power transfer from said combustion.

43. (Previously presented) A internal combustion engine as defined in claim **42** including fuel injection means.

44. (Previously presented) A internal combustion engine as defined in claim **42** including ignition means.

45. (Previously presented) A internal combustion engine as defined in claim **42**

including cooling means.

46. (Previously presented) A internal combustion engine as defined in claim **42** including lubrication means.

47. (Previously presented) A internal combustion engine as defined in claim **42** including cylinder means.

48. (Previously presented) A internal combustion engine as defined in claim **42** including piston means.

49. (Previously presented) A internal combustion engine as defined in claim **42** including camshaft means.

50. (Previously presented) A internal combustion engine as defined in claim **42** including valve means.

51. (Previously presented) A internal combustion engine as defined in claim **42** including throttle means.

52. (Previously presented) A internal combustion engine as defined in claim **42** including crankshaft means.

53. (Previously presented) A method for an internal combustion engine, which comprises:

(a) compressing a fuel within a housing means in a passage between a positive displacement gear type compressor and a reciprocating means to cause combustion wherein the energy of combustion is transferred to said reciprocating means and said compressor means.

54. (Previously presented) The method for an internal combustion engine as defined in claim **53** wherein:

(b) said compressor is rotationally connected to said reciprocating means.

55. (Previously presented) The method for an internal combustion engine as defined in claim **53** wherein:

(b) fuel injection means injects fuel into said housing means.

56. (Currently Amended) A method for an internal combustion engine, which comprises:

(a) compressing a fuel within a housing means in the passage between a positive displacement gear type compressor and a reciprocating means wherein the energy of combustion is transferred to said reciprocating means and said compressor means.

57. (Previously presented) A method for an internal combustion engine, which comprises:

compressing a fuel within a housing means in a passage between a positive displacement gear type compressor and a reciprocating means to cause combustion wherein the energy of combustion is transferred to said reciprocating means and said compressor means; wherein fuel injection means injects fuel into said housing means; and spark ignition means initiates combustion.

58. (Currently Amended) Apparatus for an internal combustion engine, which comprises:

(a) a housing means;

(b) a compressor means;

(c) a reciprocating means;

(d) a fuel supply means;

(e) a means to compress fuel in a passage between said compressor means and said reciprocating means to initiate combustion, wherein the power of combustion is transferred to said reciprocating means and said compressor means.

59. (Previously presented) A method for a internal combustion engine, which comprises:

compressing a fuel within a housing means in a passage between a compressor means and a reciprocating means to cause combustion wherein the energy of combustion is transferred to said reciprocating means and said compressor means; wherein fuel injection means injects fuel into said housing means; and having spark ignition means.

60. (Previously amended) The apparatus of a internal combustion engine as defined in claim **58** including:

(f) a cooling means.

61. (Previously amended) The apparatus of a internal combustion engine as defined in claim **58**, including:
(f) a lubrication means.

62. (Previously amended) The apparatus of a internal combustion engine as defined in claim **58**, including:
(f) a valve means.

63. (Previously amended) The apparatus of a internal combustion engine as defined in claim **58** including:

(f) a bearing means.

64. (Previously presented) A internal combustion engine having a housing means to provide the necessary spaces in the engine, a reciprocating means to output engine power and force combustion products out of the engine, a compressor means to force combustible material into said housing means and compress it there, a valve means to control fluids passing to said reciprocating means, wherein the improvement comprises a fuel supply means to supply fuel into said housing means upstream of said valve means to cause combustion to commence upstream of said valve means.

65. (Previously presented) A two cycle internal combustion engine having a housing means to provide the necessary spaces in the engine, a reciprocating means to output engine power and force combustion products out of the engine, a compressor means to force combustible material into said housing means and compress it there, a valve means to control fluids passing to said reciprocating means, wherein the improvement comprises a fuel supply means to supply fluid into said housing means upstream of said valve means to cause combustion to commence upstream of said valve means.

66. (Previously presented) A two cycle internal combustion engine as defined in claim **39** wherein the improvement comprises cooling passages located within the engine head to cool engine head combustion passages, exhaust passages and valves.

67. (Previously presented) A internal combustion engine as defined in claim **36** wherein said camshaft drive gear train includes a crankshaft driven gear fixedly attached to one compressor gear shaft so said crankshaft can drive said compressor gear shaft.

68. (Previously presented) An internal combustion engine comprising:

a housing providing necessary spaces in the engine;
a positive displacement compressor for forcing combustible material into the engine;
a fuel injection means for injecting fuel into combustible material for combustion; and
a reciprocating means for compressing fuel and combustible material held within said housing into a passage located between said compressor and said reciprocating means for causing detonation of said fuel and combustible material, wherein the compressor continues to compress additional fuel and combustible material after combustion begins into said passage in the engine where detonation initiates.

69. (Previously presented) The internal combustion engine of claim **68**, further wherein the compressor is rotationally connected to the reciprocating assembly for a transfer of power between said compressor and said reciprocating assembly.

70. (Previously presented) The internal combustion engine of claim **68** including intake valve means to control the flow of fuel and combustible material into said passage from said positive displacement compressor.

71. (Previously presented) The internal combustion engine of claim **68**, wherein the compressor is a gear pump compressor.

72. (Previously presented) The internal combustion engine of claim **70** further comprising spark ignition means.

73. (Previously presented) The internal combustion engine of claim **68**, wherein said reciprocating assembly comprises a crankshaft, a connecting and a piston assembly.

74. (Previously presented) The internal combustion engine of claim **68**, further comprising a spark ignition means.

75. (Previously presented) A method for operating an engine comprising:
providing an engine having;
a housing that provides necessary spaces in the engine;
a positive displacement compressor for forcing combustible material into the engine;
a fuel injector for injecting fuel into the engine for combustion; and
a reciprocating means for compressing combustible material and receiving a

power transfer from combustion;

providing combustible material to said compressor for compression; and
including the steps of:
providing fuel to said fuel injector;
injecting fuel into said combustible material for combustion;
reciprocating means compressing fuel and combustible material to cause detonation to begin;
burning said combustible material and fuel to produce energy; and
continuing to force additional combustible material and fuel into the combustion process after the step of detonating said combustible material begins.

76. (Previously Presented) The method of claim **75** providing a rotational power transfer between said positive displacement compressor and said reciprocating means for power transfer between them.

77. (Previously Presented) The method of claim **76** including an intake valve means for providing the control of the flow of compressed fuel and combustible material into said housing for combustion.

78. (Previously Presented) The method of claim **77** wherein said positive displacement compressor is a gear pump for providing high pressure compression of fuel and combustible material.

79. (Previously Presented) The method of claim **78** further comprising spark ignition means for providing spark ignition to initiate combustion of said fuel and combustible material.

80. (Previously Presented) The method of claim **79** wherein said reciprocating means comprises a crankshaft, a connecting rod and a piston assembly for providing compression of fuel and combustible material and a power transfer for rotational torque output.

81. (Previously Presented) The method of claim **75** further comprising a spark ignition means for providing spark ignition of compressed fuel and combustible material.

82. (Previously Presented) A two cycle internal combustion engine comprised of:

a housing that provides the necessary spaces in the engine,
an air intake port;
an engine cylinder;

a positive displacement gear type air compressor situated between said air intake port and a passage leading to said cylinder to compress combustible material into said passage and cylinder, said compressor including first and second gear shafts rotatably mounted in first and second partial cylinders;

a fuel injector for injecting fuel into said passage for combustion;

a reciprocating assembly for compressing combustible material in said passage and said cylinder and receiving a power transfer from combustion; and

an exhaust port.

83. (Previously Presented) The engine of claim **82** wherein said reciprocating assembly further comprises a piston secured to one end of a rotatable connecting rod by a rotatable piston pin, said connecting rod also connected on its other end to a crankshaft by a crankshaft rod journal, whereby as said crankshaft rotates said rod journal and connecting rod are rotated, pushing said piston pin and piston towards the internal housing wall of said cylinder, thereby reducing the volume within said cylinder and compressing the air held therein into said passage.

84. (Previously Presented) The engine of claim **83** wherein when said piston reaches approximately top dead center of said cylinder, said fuel injector injects fuel into said passage also containing compressed air from said positive displacement air compressor, and the high temperature of the compressed air confined within said passage ignites said fuel and commences combustion, with said air compressor continually compressing more combustible material to the combustion process after detonation commences.

85. (Previously Presented) The engine of claim **84** further comprising a first pulley drive and a second pulley drive, wherein said crankshaft output shaft is rotatably connected to the first drive pulley, and said first pulley drive is connected to said second pulley drive by a drive belt to transfer power to said second pulley drive.

86. (Previously Presented) The engine of claim **85** wherein said second pulley drive is connected to said first gear shaft so that rotation of said second drive pulley in turn causes said first gear shaft to rotate.

87. (Previously Presented) The engine of claim **86** wherein teeth of said first gear shaft engage with teeth of said second gear shaft so that when said first gear shaft is rotated said second gear shaft is also caused to rotate.

88. (Previously Presented) The engine of claim **87** whereby rotation of said first and second gear shafts forces air received from said intake port to move along the

circumference of said first and second partial cylinders and into said passage and engine cylinder.

89. (Previously Presented) The engine of claim **88** wherein air in said passage and cylinder is compressed into said passage by rotation of said first and second gear shafts and also by the reciprocating motion of said piston to the top dead center position within said cylinder.

90. (Previously Presented) The engine of claim **89** wherein said fuel injector injects fuel into said passage and is burned by the high temperature of the compressed combustible material inside said passage.

91. (Previously Presented) The engine of claim **90** wherein said burning causes combustion of the fuel and air within said passage and said combustion increases the pressure within said passage and cylinder forcing said piston to move from top dead center to bottom dead center within said cylinder and uncover said exhaust port.

92. (Previously Presented) The engine of claim **91** wherein said pressure within said passage and cylinder forces combustion products contained within said passage and cylinder out through said exhaust port.

93. (Previously Presented) The engine of claim **92** wherein said positive displacement gear type compressor supplies additional combustible material to said passage and cylinder scavenging said passage and cylinder of combustion products.

94. (Previously Presented) The engine of claim **93** wherein the release of said combustion products contained within said passage and cylinder reduces the pressure inside said passage and cylinder and fills them with combustible material.

95. (Previously Presented) The engine of claim **94** wherein said reciprocating assembly pushes said piston to the top dead center position compressing combustible material held within said cylinder into said passage.

96. (Previously Presented) The engine of claim **95** wherein said fuel injector injects additional fuel into said passage to again initiate combustion of fuel and combustible material inside said passage to cause combustion and produce another power stroke.

97. (Previously Presented) An internal combustion engine comprised of a housing for containing the necessary spaces within the engine, a positive displacement gear type air compressor for forcing combustible material into a space within the engine

where combustion is initiated, a fuel supply means for supplying fuel for combustion into said space within the engine, a reciprocating means for compressing combustible material into said space within the engine and for receiving an energy transfer from said combustion, wherein the improvement comprises said positive displacement gear type air compressor continues to force combustible material into said space within the engine.

98. (Previously Presented) The internal combustion engine as defined in claim **97** wherein said reciprocating means includes a crankshaft, connecting rod, piston pin, and piston.

99. (Previously Presented) The internal combustion engine as defined in claim **97** including spark ignition means for initiating said combustion.

100. (Previously Presented) The internal combustion engine as defined in claim **97** wherein said fuel supply means includes fuel injection means for injecting fuel into said space within the engine for combustion.

101. (Previously Presented) The internal combustion engine as defined in claim **97** wherein said positive displacement gear type air compressor includes a positive displacement gear pump for forcing combustible material into the engine.

102. (Previously Presented) The internal combustion engine as defined in claim **97** wherein said reciprocating means is rotationally connected by power transfer means to said positive displacement gear type air compressor for a transfer of power between them.

103. (Previously Presented) The internal combustion engine as defined in claim **97** wherein said necessary spaces within the engine includes a cylinder for confining the reciprocating motion of the reciprocating means.

104. (Previously Presented) The internal combustion engine as defined in claim **98** including spark ignition means for initiating said combustion.

105. (Previously Presented) The internal combustion engine as defined in claim **104** wherein said fuel supply means includes fuel injection means for injecting fuel into said space within the engine for combustion.

106. (Previously Presented) The internal combustion engine as defined in claim **105** wherein said crankshaft is rotationally connected by power transfer means to said positive displacement gear type air compressor for a transfer of power between them.

107. (Previously Presented) The internal combustion engine as defined in claim **106** wherein said positive displacement air compressor includes a positive displacement gear pump for forcing combustible material into said space within the engine for combustion.

108. (Previously Presented) In a two cycle internal combustion engine having housing means to provide the necessary spaces in the engine, compressor means to force combustible material into the engine, fuel injection means to inject fuel into the engine for combustion, reciprocating means to compress combustible material held within said housing means between the compressor means and the reciprocating means to cause detonation of said combustible material, wherein said reciprocating means includes crankshaft means to cause reciprocating motion of a reciprocating part, receive a power transfer from the reciprocating part during combustion, and output engine torque, wherein said crankshaft means includes output shaft means to output engine torque, and wherein the improvement comprises the compressor means can compress more combustible material to the combustion process after detonation commences.

109. (Previously Presented) A two-cycle internal combustion engine as defined in claim **108** wherein the compressor means include output shaft means to output and receive engine power.

110. (Previously Presented) A two cycle internal combustion engine as defined in claim **109** wherein the improvement comprises power transfer means rotatably connecting said crankshaft output shaft means to said compressor output shaft means for a transfer of power between them.

111. (Previously Presented) A two-cycle internal combustion engine as defined in claim **110** wherein the compressor means is comprised of a positive displacement gear type air compressor to compress combustible material into the engine.

112. (Previously Presented) A two cycle internal combustion engine as defined in claim **111** wherein said housing means includes cylinder means to confine the movement of the reciprocating means.

113. (Previously Presented) A two cycle internal combustion engine as defined in claim **112** wherein the reciprocating parts include piston means, piston pin means and connecting rod means with said piston means connected to said piston pin means and the piston pin means rotatably connected to said connecting rod means and the connecting rod means rotatably connected to the crankshaft means for a transfer of

power between the crankshaft means and the connecting rod means.

114. (Previously Presented) A two-cycle internal combustion engine as defined in claim **113** wherein the improvement comprises an exhaust passage means connected between an exterior wall of the housing means and said cylinder means for the release of exhaust gases contained within the cylinder means.

115. (Previously Presented) A two-cycle internal combustion engine as defined in claim **114** wherein the improvement comprises intake passage means connected between an exterior wall of the housing means and the interior housing space confining the compressor means for passage of combustible material to the compression means.

116. (Previously Presented) A two-cycle internal combustion engine as defined in claim **115** wherein the improvement comprises passage means connecting the outlet of the compressor means to the cylinder means.

117. (Previously Presented) A two-cycle internal combustion engine as defined in claim **116** wherein the improvement comprises a fuel injector located within the housing means for injection of fuel into the housing means.

118. (Previously Presented) A two-cycle internal combustion engine as defined in claim **117** wherein said fuel injector injects fuel between the compressor means and the reciprocating means.

119. (Previously Presented) A two cycle internal combustion engine as defined in claim **118** wherein the improvement comprises a fuel igniter located within the housing means to ignite combustible material within the housing means between the compressor means and the reciprocating means.

120. (Previously Presented) A two-cycle internal combustion engine as defined in claim **119** wherein the improvement comprises intake and exhaust valve means to control the flow of fluids moving between engine housing spaces.

121. (Previously Presented) A two cycle internal combustion engine as defined in claim **120** wherein said valve means includes valve port means formed in the housing means between the compressor means and the cylinder means and a valve to cover said valve port means to control the flow of fluids moving between the compressor means and the cylinder means, and between the cylinder means and the exhaust port means.

122. (Previously Presented) A two cycle internal combustion engine as defined in

claim **121** wherein the improvement comprises oil pump means to pump lubricant to moving parts of the engine.

123. (Previously Presented) A two-cycle internal combustion engine as defined in claim **122** wherein the housing means includes cooling passage means to contain engine coolant and provide a means to remove excess heat from the housing means.

124. (Previously Presented) A two cycle internal combustion engine as defined in claim **123** wherein the improvement comprises bearing means to provide support to rotating parts.

125. (Previously Presented) A two cycle internal combustion engine as defined in claim **124** wherein the improvement comprises throttle means to control the supply of oxygen entering the intake passage means so the combustion process can be controlled.

126. (Previously Presented) A two cycle internal combustion engine as defined in claim **125** wherein said positive displacement gear type air compressor includes two gear shafts divided into five separate gear pumps to pump all the working fluids the engine uses, air, coolant, oil, and fuel having a air compressor to compress air into the engine, a gear pump to each side of the compressor gears to pump engine oil, and beside one said oil gear pumps a coolant gear pump to pump engine coolant, and beside the other oil gear pump a fuel gear pump to pump engine fuel.

127. (Previously Presented) An internal combustion engine comprising:
a housing providing necessary spaces in the engine;
a compressor for forcing combustible material into the engine;
a fuel injector for injecting fuel into the engine for combustion;
a spark ignition means; and

a reciprocating assembly for compressing combustible material held within said housing between said compressor and said reciprocating assembly for causing detonation of said combustible material, wherein said compressor can compress additional combustible material after detonation commences.

128. (Previously Presented) A method for operating an engine comprising:
providing an engine having;
a housing that provides necessary spaces in the engine;
a compressor for forcing combustible material into the engine;
a fuel injector for injecting fuel into the engine for combustion; and
a reciprocating assembly;

providing combustible material to said compressor;
providing fuel to said fuel injector;
providing fuel to said combustible material;
compressing said combustible material between said compressor and said reciprocating assembly;
detonating said combustible material by providing a spark ignition; and
compressing additional combustible material after the step of detonating commences.

129. (Previously Presented) A two cycle internal combustion engine wherein the improvement comprises continually forcing combustible material into a space within the engine where detonation is initiated.

130. (Previously Presented) The two cycle internal combustion engine as defined in claim **129** wherein the improvement comprises continuing to force combustible material into the combustion process.

131. (Previously Presented) The two cycle internal combustion engine as defined in claim **130** wherein the improvement comprises simultaneously transferring the power of combustion to a reciprocating assembly means and a compressor means.

132. (Previously Presented) The two cycle internal combustion engine as defined in claim **131** wherein the improvement comprises said compressor means includes a positive displacement gear type air compressor.

133. (Previously Presented) The two cycle internal combustion engine as defined in claim **132** wherein the improvement comprises said positive displacement air compressor is a positive displacement gear pump.

134. (Previously Presented) The two cycle internal combustion engine as defined in claim **133** wherein the improvement comprises spark plug means.

135. (Previously Presented) The two cycle internal combustion engine as defined in claim **134** wherein the improvement comprises said reciprocating assembly includes piston means.

136. (Previously Presented) The two cycle internal combustion engine as defined in claim **135** wherein the improvement comprises engine means.

137. (Previously Presented) A two cycle internal combustion engine comprising means to continuously force combustible material into a space within the engine where

combustion is initiated.

138. (Previously Presented) The two cycle internal combustion engine as defined in claim **137** wherein the improvement comprises means to transfer the power of combustion to a reciprocating assembly and a compressor.

139. (Previously Presented) The two cycle internal combustion engine as defined in claim **138** wherein the improvement comprises said compressor is a positive displacement gear pump.

140. (New) A two cycle internal combustion engine comprising a compressor for compressing combustible material and fuel, a fuel supply, a valve opened by compressed combustible material and fuel *for* passing said compressed combustible material and fuel into the engine cylinder through the valve orifice, engine means, sensor means, electrical means, computer means, lubrication means, engine management means, bearing means, cooling means, control means, and starting and stopping means.

141. (New) The two cycle internal combustion engine as defined in claim **140** wherein the improvement comprises said compressor is a positive displacement gear type compressor.

142. (New) The two cycle internal combustion engine as defined in claim **140** wherein the improvement comprises exhaust means to produce a four cycle exhaust stroke.

143. (New) The two cycle internal combustion engine as defined in claim **140** wherein the improvement comprises said fuel supply includes fuel injector means.

144. (New) The two cycle internal combustion engine as defined in claim **140** wherein the improvement comprises said compressor is a gear pump.

145. (New) The two cycle internal combustion engine as defined in claim **140** wherein the improvement comprises ignition means.

146. (New) The two cycle internal combustion engine as defined in claim **141** wherein the improvement comprises said compressor is a gear pump.

147. (New) The two cycle internal combustion engine as defined in claim **146** wherein the improvement comprises exhaust means to produce a four cycle exhaust stroke.

148. (New) The two cycle internal combustion engine as defined in claim **147** wherein

the improvement comprises said fuel supply includes fuel injector means.

149. (New) The two cycle internal combustion engine as defined in claim **148** wherein the improvement comprises ignition means.

150. (New) An internal combustion engine comprising a compressor for compressing combustible material and fuel, a fuel supply, a valve opened by compressed combustible material and fuel for passing said compressed combustible material and fuel into the engine cylinder through the valve orifice, engine means, sensor means, electrical means, computer means, lubrication means, engine management means, bearing means, cooling means, control means, and starting and stopping means.

151. (New) The internal combustion engine as defined in claim **150** wherein the improvement comprises said compressor is a positive displacement gear type compressor.

152. (New) The internal combustion engine as defined in claim **150** wherein the improvement comprises exhaust means to produce a four cycle exhaust stroke.

153. (New) The internal combustion engine as defined in claim **150** wherein the improvement comprises said fuel supply includes fuel injector means.

154. (New) The internal combustion engine as defined in claim **150** wherein the improvement comprises said compressor is a gear pump.

155. (New) The internal combustion engine as defined in claim **150** wherein the improvement comprises ignition means.

156. (New) The internal combustion engine as defined in claim **151** wherein the improvement comprises said compressor is a gear pump.

157. (New) The internal combustion engine as defined in claim **156** wherein the improvement comprises exhaust means to produce a four cycle exhaust stroke.

158. (New) The internal combustion engine as defined in claim **157** wherein the improvement comprises said fuel supply includes fuel injector means.

159. (New) The internal combustion engine as defined in claim **158** wherein the improvement comprises ignition means.

160. (New) A two cycle internal combustion engine wherein the improvement

comprises a orifice for passing compressed combustible material and fuel into the engine cylinder.

161. (New) The two cycle internal combustion engine as defined in claim **160** further comprising spark ignition means wherein the improvement comprises a valve to cover said orifice for controlling the flow of compressed combustible material and fuel into the engine cylinder.

162. (New) The two cycle internal combustion engine as defined in claim **161** further comprising a gear pump compressor means wherein the improvement comprises initiating combustion between said gear pump compressor and said valve to cause combustion operation of said valve.

163. (New) The two cycle internal combustion engine as defined in claim **162** further comprising computer means, lubrication means, engine management means, bearing means, cooling means, control means, starting and stopping means, sensor means, electrical means, and two cycle internal combustion engine means wherein the improvement comprises exhaust means to produce a four cycle exhaust stroke in the engine.

Remarks

This SUPPLEMENTAL AMENDMENT is respectfully being submitted as a replacement for the Supplemental Reply filed by Applicant dated August 22, 2007, which was a Replacement for Applicant's Supplemental Reply filed on August 21, 2007. The second Reply was submitted in an effort to correcting minor errors Applicant detected in the first reply after the first reply was mailed.

Although a Notice of Non-Compliant Amendment was not received regarding either submission, a complete listing of all of the claims including the proper status identifier for each claim was not present in the Supplemental Amendment filed on August 22, 2007. Therefore, it is believed that the amendments in the August 22, 2007 reply may not have been entered properly. To make sure these amendments are entered and properly considered by the Examiner, such amendments are being presented again herein, including a complete listing of all of the claims having the proper status identifiers, and also including new claims 140-163. New claims 140-149 and 160-163 are directed to a two cycle internal combustion engine arrangement, while new claims 150-159 are directed to an internal combustion engine, not limited to a two cycle internal combustion engine.

The exact remarks made by the Applicant in his August 22, 2007 Supplemental Amendment are not repeated here, since it is believed that only the submission of a

complete listing of the claims is required to be resubmitted. However, Applicant again asserts that in neither the Von Blaricom and Rowells references cited by the Examiner is combustible material compressed between a compressor and a closed valve by detonation, combustion or fluid pressure behind the valve allowing a burning or compressed fluid(s) to flow through the valve port, (an orifice) into the cylinder of the engine. Also, neither of the referenced inventions illustrate or describe a four cycle exhaust stroke as illustrated and described in the present application.

In view of the above, Applicant respectfully submits that all of the pending claims including new claims 140-163 are in condition for allowance. Further, it is not believed that any fees are due for this submission, as such fees have already been paid.

Respectfully submitted,

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